A CRITICAL ANALYSIS IN ENHANCING TEACHING EFFECTIVENESS THROUGH MODERN PEDAGOGY

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Abstract

Enhancing the effectiveness of teaching methods is a perpetual concern that will always be of paramount significance in the realm of education. Pedagogy, as an academic field, encompasses the art and science of teaching students and plays a crucial role in fostering meaningful connections between teachers and their learners. The importance of pedagogical techniques and strategies has become more prominent as a means to assist students in achieving their full potential and to provide a dynamic, engaging, and comprehensive educational environment. This is a consequence of the fact that one of the main objectives of education is to equip pupils for their forthcoming lives. An academic investigation into the potential enhancements in teaching efficacy through pedagogical methods necessitates a comprehensive examination of teaching and learning, as well as the evolving educational landscape. The objective of the present study is to examine a range of pedagogical tactics, concepts, and recent advancements to evaluate their impact on learning outcomes and teaching effectiveness. This study is highly relevant for academics, policymakers, educators, and anyone with a vested interest in the continuous improvement of educational institutions worldwide. There are similarities between the process of effective teaching and the alchemical transformation, which can be achieved by applying pedagogical concepts. This comprehensive review seeks to elucidate the various aspects that contribute to the efficacy of this educational approach.

Keywords: Pedagogy, Education, Technology, Chi Square Test.

INTRODUCTION

The educational system of a nation is the primary determinant of its ability to cultivate persons of outstanding quality. The Ministry of Education Malaysia is responsible for the crucial task of formulating and implementing national education policies, assuming the great duty that comes with it. The objective of this endeavor is to establish a highly skilled and proficient workforce, with the ultimate aim of bolstering the nation's capacity to cultivate accomplished and innovative educators. The Ministry of Education (MOE) aims to cultivate a population that can thrive and succeed over a long period of time, given the current circumstances. This objective will be achieved by providing exceptional educational opportunities to the student body. According to Aspan et al. (2020), it is claimed that every individual possesses inherent self-potential that, if utilized, can contribute to the advancement of national excellence. The results were revealed in 2020. This can be achieved by implementing an educational system that not only imparts knowledge, but also cultivates a society characterized by its forward-thinking, competitive, and adaptable nature (Arofiq, 2020). The correlation between student advancement and academic achievement is closely linked to the pivotal function and obligations of educators. According to the findings of Schmidt, et al. (2017), instructors are crucial in facilitating curricular adjustments. This can be attributed to their ability to cultivate human capital, which is demonstrated by their positivism, forward-thinking, morality, and cultural literacy. In order to thrive and navigate the challenges of the rapidly changing landscape of the twenty-first century, it is considered that individuals must exhibit certain qualities. It is imperative to

enhance the level of enthusiasm exhibited by teachers in this particular context to ensure the growth of exceptional pupils and the effectiveness of the educational institution as a whole. As to Jerrim et al. (2018), teachers' job inspiration has a broader impact that extends beyond the limitations of the school's culture and structure, reaching into the wider social environment. Given this, it is imperative to examine the motivational factors that influence instructors in their professional capacities, since their impact extends beyond merely improving students' outcomes and encompasses their job as an inspirational figure for their pupils (Sulfemi, 2020). Given this, it is crucial to contemplate the motivational factors that propel teachers in their professional capacities.

Moreover, previous studies have established a positive correlation between teacher morale and classroom productivity. This emphasizes the importance of recruiting and retaining highly skilled educators to uphold the esteemed standing of educational institutions nationwide. Paulus (2020) suggests that the level of support a teacher receives in their employment significantly influences the development of the work ethic required to attain a specific objective. According to Prasetia (2020), teachers are more likely to exhibit heightened motivation in carrying out their duties and fulfilling their tasks when they perceive teaching as both their mission and obligation, and when they possess a positive attitude towards their profession. As to Aspan et al. (2020), certain teachers tend to persist with the same instructional practices, even though they have not shown any notable progress in enhancing their teaching methods or achieving exceptional levels of student performance. It is crucial to acknowledge and pay attention to this trend as it is worth discussing. The primary factor contributing to the current situation appears to be the overall decrease in teachers' morale. As to the idea proposed by Ladd et al. (2017), an individual's level of commitment to their profession influences the highest level of work performance they can achieve, considering their various talents and abilities.

Researchers have encountered a difficult undertaking in establishing the efficacy of training in the realm of higher education. Ozgenel (2020) states that the intricate notion of effective instruction in higher education has been subject to diverse interpretations and connotations, as revealed by academic research. A wide range of theoretical frameworks, encompassing qualitative and quantitative research methodologies, along with diverse academic perspectives, have been employed in extensive endeavors to clarify effective instructional attributes. These endeavors have been pursued to enhance comprehension of the elements that define successful teaching methods. During this research, the learner's perspective has been considered as a significant aspect. Johnson, Ryan, Paulsen, and Trigwell conducted research on the subject and found that there is no consensus on the definition of effective university teaching. It is crucial to remember that a person's current position on a continuum or trajectory can also be used as a way to measure the effectiveness demonstrated by an instructor. This is due to the fact that both of these concepts can be conceptualized as a trajectory. Robertson (year) defines developmental transitions in academic contexts as the dynamic interaction between individuals who have instructional obligations and the specific roles they hold (Amtu, 2020). These transitions, characterized by the shift from one role to another, can present numerous challenges and need a significant time commitment to adapt effectively. The usefulness of this technique is in its reliance on empirical research, which offers enlightening guidance to college and university teachers seeking to enhance their effectiveness as lecturers.

To adhere to the developmental paradigm, it is crucial to consider the three fundamental perspectives in the specified sequence (p. 14). The phenomenon observed in teachers who replicate their own experiences and concerns in their students is known as "teacher-centeredness," which is synonymous with the concept of "egocentrism." Egocentrism is the tendency to excessively prioritize oneself. It is feasible to conceptualize pupils as an abstraction. Aliocentrism, or learner centeredness, has led to a notable shift in the focus placed on education. There is currently a greater emphasis on facilitating access to knowledge, rather than solely prioritizing the distribution of information. According to Robertson, if educators begin to view themselves as facilitators of the learning process, there is a potential for a paradigm shift to occur. The perspective referred to as systemocentrism, sometimes known as teacher/learner centeredness, is commonly espoused. This perspective necessitates that teachers focus on the ecological and nuanced elements of the curriculum, while also participating in self-reflection over their interactions with pupils. One of the most prominent characteristics of this developmental paradigm is the absence of predetermined progression paths for instructors. Consequently, the progression through several developmental phases is uncertain and cannot be assured. For successful integration of novel pedagogical techniques into their teaching tactics, educators are required to actively participate in the process (Agudo, 2017).

In today's educational environment, pedagogy goes beyond conventional approaches and is enhanced by current viewpoints on designing instruction, integrating technology, accommodating varied learning styles, and recognizing the increasing importance of inclusivity and equity. These reasons have led educators to embrace creative methods that address the specific requirements of students and promote a more inclusive learning atmosphere (Xie, 2020). Incorporating technology in pedagogy has created opportunities for dynamic and engaging teaching approaches, enabling tailored learning experiences. The objective of this research topic is to thoroughly examine and analyze the different aspects of pedagogy, such as instructional methods, curriculum design, assessment methods, and the impact of educational technologies. Through the analysis of these many factors, we may enhance our comprehension of how pedagogy can be maximized to address the varied requirements of students and establish a more comprehensive educational setting. This project aims to investigate the possible advantages and difficulties related to using technology into teaching methods. It will ultimately offer valuable insights into how educators can successfully utilize these technologies to improve student learning results. By doing this rigorous examination, researchers can aim to uncover the most efficient educational methods, the elements that facilitate or impede their application, and their final impact on student involvement, comprehension, and achievement. This research endeavors to enhance the current knowledge on the incorporation of technology in education by analyzing existing literature and conducting empirical experiments. Furthermore, it will elucidate the significance of educators in supporting the use of technology and offer suggestions for professional development programs that can assist instructors in proficiently utilizing these tools in their classrooms. This research not only enhances teaching skills but also provides vital insights into optimizing educational systems and developing comprehensive, student-centered learning environments. This research endeavors to analyze the effects of incorporating technology into education, with the goal of exploring the difficulties and advantages that emerge in the era of digitalization. The study will investigate the ways in which technology might improve student involvement, cooperation, and analytical thinking

abilities, ultimately equipping students for triumph in a swiftly changing world. In addition, this study will examine the possible difficulties and constraints of incorporating technology, guaranteeing that educators possess the essential understanding and materials to surmount these challenges. Through a thorough analysis of the connection between teaching methods and the ability to effectively educate, instructors and those involved in education can strive to develop more influential, adaptable, and inclusive learning experiences that empower students to succeed in the modern era. This study will also investigate novel pedagogical methods and techniques that utilize technology to improve student involvement and academic achievements. Educators can acquire valuable insights on how to seamlessly incorporate technology into their classrooms and modify their teaching approaches by examining exemplary case studies and determining optimal strategies. The primary objective of this research is to establish a connection between theoretical concepts and their practical application. It attempts to offer practical suggestions to educators on how to effectively address the difficulties associated with incorporating technology into education.

REVIEW OF LITERATURE

Improving the efficacy of training through teaching methods is a crucial focus in modern education, influenced by a combination of variables such as technology progress, changing educational approaches, and the growing variety of students' requirements and backgrounds. Educators are acknowledging the necessity to modify their instructional approaches in order to accommodate the evolving terrain of education. They are implementing novel teaching methods that encourage active participation, cooperation, and the development of analytical thinking abilities in pupils. This literature review provides a thorough analysis of how pedagogy contributes to the enhancement of teaching effectiveness. It specifically investigates three key factors: the extent of teacher training and support, the accessibility of resources and infrastructure, and the willingness of teachers and students to adopt technology in the learning process (Gunawan 2020). The efficacy of teaching is heavily influenced by the extent of teacher training and support. Teachers who undergo extensive training and receive continuous assistance are more proficient in implementing cutting-edge teaching methods and adjusting to the evolving requirements of their students. Moreover, the presence of resources and infrastructure, such as advanced technological tools and well equipped classrooms, facilitates the application of pedagogical methods that promote active learning and the development of critical thinking abilities.

Teacher Training and Support:

The significance of teacher training and continuous professional development has been recognized as a critical factor in determining effective teaching methods. Research underscores the significance of equipping teachers with essential pedagogical competencies and tactics, while also offering ongoing assistance to accommodate changing educational environments. This entails instructing educators on the optimal methods for incorporating technology into their instructional methods, while also offering continuous assistance and materials to ensure they remain informed about the most recent developments. In addition, cultivating a culture of collaboration and knowledge exchange among teachers can further boost their professional development and efficacy in the classroom (Don, 2021).

Efficient teacher training provides educators with a wide range of teaching methodologies, classroom administration methods, and tactics for adapting to various learning preferences. Through the integration of technology into their instructional methods, instructors have the ability to include students in interactive and dynamic learning encounters. This can facilitate the cultivation of vital 21st-century competencies, including critical thinking, problem-solving, and digital literacy, among pupils. Furthermore, comprehensive teacher training should incorporate instruction on proficiently evaluating student advancement and delivering prompt feedback to facilitate their educational progression. This training is crucial for enabling teachers to adjust to the requirements of varied student populations and seamlessly use technology. Research has indicated that instructors who receive thorough training and support demonstrate greater levels of self-assurance and proficiency in providing teaching. This, in turn, has a favorable effect on student engagement and learning outcomes (Amtu, 2020). Furthermore, effective assessment and timely feedback are crucial in identifying areas where students may be struggling and tailoring instruction to meet their individual needs. By providing teachers with the necessary training and support, they can better understand how to assess student progress using a variety of methods and tools, such as formative assessments and rubrics. This allows them to provide targeted feedback that helps students understand their strengths and areas for improvement, ultimately enhancing their learning journey.

Availability of Resources and Infrastructure:

The presence of resources and strong infrastructure is another crucial component that impacts the effectiveness of teaching through pedagogy. Teachers can utilize a diverse array of resources, including textbooks, internet databases, and instructional technology, to design captivating and interactive courses that accommodate various learning preferences. In addition, a dependable infrastructure with fast internet and well-equipped classrooms facilitates the seamless delivery of these lessons, allowing teachers to efficiently utilize these resources and improve their teaching efficacy. Ertmer and Ottenbreit-Leftwich's study revealed that insufficient availability of crucial instructional materials and technology can impede the adoption of innovative educational approaches.

The study also indicated that teachers who had enough access to the requisite resources were more inclined to integrate technology into their instructional practices and involve students in interactive learning activities. This underscores the need of equipping educators with the necessary resources to proficiently execute cutting-edge teaching methodologies and cater to the varied requirements of their students. Sufficient resources, including as textbooks, digital tools, and multimedia materials, not only enhance the delivery of captivating lessons but also enable the customization and individualization of education to cater to the unique needs of students. Furthermore, contemporary educational methods frequently utilize technology, necessitating dependable internet connectivity and current gear. Lacking these vital resources, educators may encounter difficulties in generating vibrant and engaging educational encounters that foster the development of analytical reasoning and problem-solving abilities (Schmidt, 2017).

Moreover, the availability of technology enables students to cultivate digital literacy abilities that are becoming increasingly crucial in the contemporary digital era. Therefore, educational institutions should allocate resources to these crucial

components in order to enable teachers in their endeavor to implement successful teaching methods. By equipping teachers with internet access and state-of-the-art equipment, educational institutions may guarantee that they possess the essential resources to integrate online materials and digital platforms into their teaching methodologies. This not only improves the educational experience for students but also equips them with the necessary skills for the technological requirements of the contemporary labor market. Furthermore, allocating resources to these fundamental components showcases a dedication to cultivating a cutting-edge educational setting that can effectively captivate pupils and facilitate their comprehensive academic development.

Willingness to Embrace Technology:

The receptiveness of both educators and learners to adopt technology in the educational process is a crucial element that connects conventional teaching methods with the era of digitalization. By integrating technology into their instructional approaches, instructors can develop engaging and dynamic classes that accommodate diverse learning preferences and captivate students' focus.

Moreover, pupils who possess proficiency in utilizing technology within the educational setting are more adept at maneuvering through the digital terrain of the professional realm. Hattie argues that when utilized by technologically proficient instructors, the incorporation of technology can serve as a powerful catalyst for effective teaching methods, enabling the creation of interactive and student-centered learning experiences.

Nevertheless, the achievement of this integration is largely dependent on the willingness and flexibility of educators and learners to seamlessly incorporate technology into the educational process.

Educators and learners who adopt technology in the educational setting are more inclined to cultivate crucial cognitive skills, problem-solving proficiencies, and digital literacy, all of which are important for achieving success in the contemporary labor market. Incorporating technology into teaching techniques enables educators to personalize learning experiences and accommodate varied student requirements, so creating a more inclusive and engaging educational environment.

Davis conducted a study on the Technology Acceptance Model (TAM), which indicates that the perceived simplicity and usefulness of technology have a substantial impact on its adoption. Therefore, it is crucial to foster a favorable outlook towards technology in both educators and learners as a means to improve the effectiveness of teaching methods (Prasetia, 2020).

The literature study highlights the complex correlation between pedagogy and teaching efficacy, specifically focusing on teacher education and assistance, availability of resources, and the openness to adopt technology. The interconnection of these aspects is crucial, and their seamless combination is necessary for the development of dynamic, learner-focused learning environments that empower both students and educators.
Future research should further examine the interaction between these aspects and explore additional variables to better understand the intricacies of improving training efficacy through teaching methods in today's educational environment.

METHODOLOGY

This study use a research approach called as descriptive research to meticulously and comprehensively delineate the situation. This type of study is valuable in scenarios when multiple factors are involved, since it facilitates a comprehensive comprehension of the subject matter under investigation.

Especially in the realm of research, the descriptive methodology is a useful approach for researchers seeking to gather data from original sources. To facilitate the investigation process, the present study utilizes many sources.

The principal instrument utilized for data collection in this study is a closed-ended questionnaire. This specific questionnaire was designed with the explicit intention of gathering data from those involved in the supply chain sector. The researcher chooses closed-ended questions pertaining to supply chain management and use a Likert scale with five points. Secondary data sources, such as ProQuest and Google Scholar, are utilized to gain insights from previous research conducted on the specific topic.

The researcher employed convenience sampling to select respondents for the study, resulting in a total of 153 participants. The primary objective of this study is to analyze the data collected from the survey, thereby necessitating the employment of a quantitative technique in the research.

The primary determinants that impact teaching effectiveness through pedagogy are the extent of teacher training and support, the accessibility of resources and infrastructure, and the readiness of both educators and learners to adopt technology in the educational journey.

Moreover, the correlation between the incorporation of technology and educational aims and curriculum objectives is essential in assessing its influence on instructional efficacy.

Research Hypothesis

1) There is no discernible disparity in the quality of teacher training and support and its impact on improving teaching effectiveness through pedagogy.

2) There is no notable disparity between the accessibility of resources and infrastructure and the improvement of teaching efficacy through pedagogy.

3) There is no discernible disparity in the eagerness of both teachers and students to adopt technology in the learning process and improve teaching effectiveness through pedagogy.

Critical Analysis and Interpretation

This section of the study focuses on presenting the data analysis derived from the information gathered from the respondents. The sample population was selected using the convenience sampling approach.

The data is analyzed using the SPSS statistical package, including procedures such as percentage rate analysis, regression analysis, and chi-square test.

Table 1: Percentage rate analysis

Gender	Frequency	Percent
Male	134	87.6
Female	19	12.4
Age	**Frequency**	**Percent**
18 - 25 years	43	28.1
26 - 40 years	56	36.6
40 - 55 years	23	15
Above 55 years	31	20.3
City	**Frequency**	**Percent**
Metro City	98	64.1
Non-metro City	55	35.9
Type of Family	**Frequency**	**Percent**
Nuclear Family	85	55.6
Joint Family	68	44.4
Current Occupation	**Frequency**	**Percent**
PG Teacher	116	75.8
Principal / Dean	37	24.2
Work experience	**Frequency**	**Percent**
10 - 15 years	77	40.3
15 - 20 years	44	28.8
Above 20 years	32	20.9

The research indicates that 87.6% of the respondents were male, while the remaining 12.4% were female. Furthermore, 28.1% of the respondents were between the ages of 18 and 25, 36.6% were between the ages of 26 and 40, 15% were between the ages of 40 and 55, and 20.3% were above the age of 55. 64.1% of the population resided in urban areas, while 35.9% lived in rural areas.

55.6% of the individuals were part of a nuclear family, while the remaining 44.4% were part of a joint family. 75.8% of the individuals are employed as PG teachers, while the rest 24.2% have positions as Principal or Dean.

Finally, 40.3% had between 10 and 15 years of experience, 28.8% had 15 to 20 years of experience, and 20.9% had more than 20 years of experience.

Regression Analysis

The second part is comprehending the correlation between the variables. The independent variables consist of Creating Broader Inclusion, Customer Centric Services, and Legal and Regulatory factors, while the dependent variable is specified as Economic Growth and Development.

Table 2: Correlation Analysis

Constructs	Teacher training and support	Availability of resources	Embracing technology for pedagogy	Teaching effectiveness
Teacher training and support	1.000	.879**	.814**	.870**
Availability of resources	.879**	1.000	.859**	.871**
Embracing technology for pedagogy	.814**	.859**	1.000	.834**
Teaching effectiveness	.870**	.871**	.834**	1.000

The analysis reveals that all variables exhibit a strong positive correlation. Specifically, the highest correlation is observed between teaching effectiveness and availability of resources, with a value of +0.871. Additionally, the relationship between teacher training and support and enhancing teaching effectiveness through pedagogy is highly correlated, with a value of +0.870. Lastly, the correlation between embracing technology and enhancing teaching effectiveness through pedagogy is moderately high, with a value of +0.834.

Chi square test

When it comes to testing the hypothesis, the final phase will involve doing chi square analysis.

In terms of boosting teaching effectiveness through pedagogy, there is no substantial difference between the level of teacher training and support and the improvement of teaching effectiveness.

Table 3: Chi square test 1

Teacher training and support		dof	P val
Chi val	319.363a	16	0.00
Ratio	235.454	16	0.00
Linear val	115.073	1	0.00

As a result of the analysis, it has been determined that the p value is 0.00, which is significantly lower than the level of significance of 0.05. As a result, the null hypothesis has been rejected, and it is possible to draw the conclusion that there is a significant difference between the level of teacher training and support and the enhancement of teaching effectiveness through pedagogy.

It is not possible to distinguish between the availability of resources and infrastructure and the enhancement of teaching efficacy through pedagogy based on any substantial difference.

Table 4: Chi square 2

Availability of resources		dof	P val
Chi val	324.649a	16	0.00
Ratio	222.282	16	0.00
Linear val	115.373	1	0.00

Based on the analysis it is noted that the p value is 0.00 which is very less than the significant level of 0.05, hence null hypothesis is rejected and hence it can be concluded that there is a significant difference between the availability of resources and infrastructure and enhancing teaching effectiveness through pedagogy.

There is no significant difference between the willingness of both teachers and students to embrace technology in the learning process and enhancing teaching effectiveness through pedagogy

Table 5: Chi square 3

Embracing technology for pedagogy		dof	P val
Chi val	323.924a	16	0.00
Ratio	207.445	16	0.00
Linear val	105.812	1	0.00

Based on the analysis it is noted that the p value is 0.00 which is very less than the significant level of 0.05, hence null hypothesis is rejected and hence it can be concluded that there is a   significant difference between the willingness of both teachers and students to embrace technology in the learning process and enhancing teaching effectiveness through pedagogy

CONCLUSION

To summarise, in the current educational environment, the pursuit of improving the efficiency of training through the use of pedagogy is an essential effort. Through the use of pedagogy, this review has shed light on the myriad of dynamics that influence the effectiveness of teaching. More specifically, the review has focused on three crucial factors: the level of teacher training and support, the availability of resources and infrastructure, and the willingness of both teachers and students to embrace technology in the learning process.

The findings of this review, which are based on empirical evidence, highlight the fact that the degree of teacher training and continual professional growth plays a fundamental role in determining the efficacy of various learning strategies. The ability to apply a variety of teaching tactics and cater to the varied requirements of their pupils is enhanced when educators are appropriately supported and well-prepared.

Because it enables educators to adjust to the ever-changing educational landscape and capitalize on the possibilities of new pedagogy, a commitment to continual professional development is of the utmost importance.

In addition, the availability of resources and a supportive infrastructure has emerged as a significant factor in determining the efficacy of educational programs. The availability of essential resources, equipment, and a dependable internet connection is of utmost importance in this day and age, when technology and digital resources are becoming more and more interwoven into the educational process.

Personalized instruction and adaptability to a variety of learning styles and preferences are made easier with the help of these resources, which not only enable educators to build learning experiences that are engaging and interactive but also assist its creation. Another factor that might have a transformative effect is the willingness of both students and teachers to incorporate technology into the learning process.

In order to revolutionize the learning experience, the seamless integration of technology into pedagogy is necessary; yet, this transformation is contingent upon the educators and students being open-minded and adaptable. Developing a constructive outlook on technology is of utmost importance, as it has a direct impact on the degree to which digital technologies are accepted and utilized effectively throughout the educational process.

To summarize, striving to improve the efficiency of training through the application of pedagogy is an endeavor that is both complex and interconnected. The trio is a harmonious confluence of components that, when aligned, can generate extraordinary results in terms of teaching efficacy.

These elements include the availability of resources and infrastructure, the openness to accept technology, and the training and support of teachers. The necessity of a holistic approach to educational improvement is highlighted by this critical study. Such an approach takes into account the myriad of aspects that contribute to the advancement of education and promotes a mutually beneficial interaction between pedagogy, technology, and the educators and students who utilize them.

To ensure that pedagogy continues to be dynamic, responsive, and aligned with the ever-changing needs and ambitions of learners in the 21st century, it is vital that continuous exploration and innovation within these domains be pursued in the quest of educational success.

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